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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,779	04/14/2004	Kyung-Kyu Kang	8733.1001.00	4667

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EXAMINER	
CHOWDHURY, TARIFUR RASHID	
ART UNIT	**PAPER NUMBER**
2871	

DATE MAILED: 08/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/823,779	KANG ET AL.	
	Examiner	Art Unit	
	Tarifur R. Chowdhury	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 August 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *04/14/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

2. , Claims 6 and 17 are objected to because of the following informalities: In clams 6 and 7, "the support member" lacks antecedent basis. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

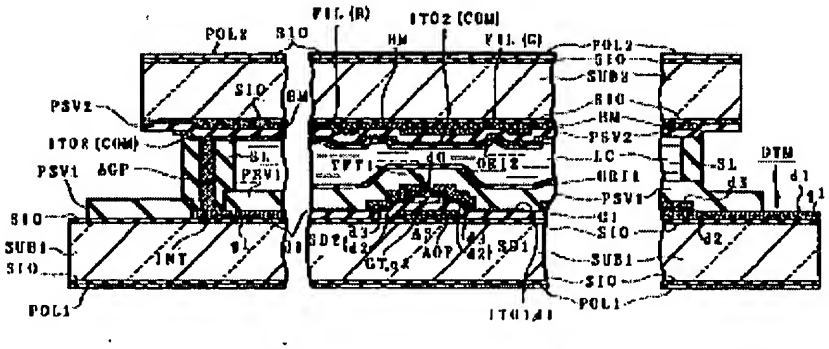
4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-5, 10-16 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al, (Suzuki), USPAT 5,739,880 in view of Kadota et al., (Kadota), USPAT 5,818,550.

6. Suzuki discloses and shows in Fig. 5(a), a liquid crystal display panel, comprising:

- a black matrix (BM) formed of a resin material (col. 10, lines 1-2), at a predetermined region of a first substrate (SUB2) and at a boundary region of pixels;
- a color filter (FIL) on the black matrix corresponding to the pixels;
- a passivation layer (PSV2) (applicant's overcoat layer) on the first substrate having the black matrix and the color filter;
- a common electrode (COM) made of ITO on the passivation layer (PSV2);
- a seal pattern (SL) on the overcoat layer; and
- a second substrate (SUB1) attached to the first substrate by the seal pattern.

FIG. 5(a) *FIG. 5(b)* *FIG. 5(c)*



Suzuki differs from the claimed invention because he does not explicitly disclose

that the thickness of the over coat layer is between approximately about 1.2 micro-meters and about 5 micro-meters.

Kadota discloses a liquid crystal display device including black matrix (8), a color filter (9) on the black matrix and a planarization layer (10) on the color filter (Fig. 2). Kadota also discloses that the planarization layer is made one of acrylic resin or a polyimide resin and has a thickness of 1.0 to 3.0 micro-meters (overlaps the claimed range) prevents impurities in the color filter from spreading into the liquid crystal and that as a result of formation of the planarization layer substrate structure is obtained with excellent liquid crystal orientation characteristics (col. 5, line 61 – col. 6, line 3).

Kadota is evidence that ordinary workers in the art would find a reason, suggestion or motivation to use an overcoat layer having a thickness in the range of 1.0 – 3.0 micro-meters.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the display panel of Suzuki by employing an overcoat layer with an overcoat layer that has a thickness in the range of 1.0 – 3.0 micro-meters for advantages such as preventing impurities in the color filter from spreading into the liquid crystal and thus obtaining with excellent liquid crystal orientation characteristics.

Accordingly, claims 1, 11 and 16 would have been obvious.

As to claims 2 and 12, Suzuki shows in Figs (5(a)-5(c)) that the black matrix (BM) is extended at least from the seal pattern (SL) formed region to one end of the portion of the first substrate (SUB2).

As to claims 3, 4, 13 and 14, Suzuki discloses that the black matrix is formed one of acrylic, epoxy and polyimide resin containing carbon black or black pigment (col. 10, lines 1-5).

As to claims 5 and 15, Suzuki further discloses that the passivation layer (PSV2) is one of acrylic resin or an epoxy resin (col. 10, lines 51-53).

As to claims 10 and 21, it is clear from Fig. 5(a) that the black matrix partially overlaps the seal member (SL).

7. Claims 1-5, 10-16 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto et al., (Okamoto), USPAT 6,429,917 in view of Kadota.

8. Okamoto discloses and shows in Fig. 7, a liquid crystal display panel, comprising:

- a black matrix (9) formed of a resin material (col. 4, lines 15-18), at a predetermined region of a first substrate (1) and at a boundary region of pixels;
- a color filter (10) on the black matrix corresponding to the pixels;
- an overcoat layer (12) on the first substrate having the black matrix and the color filter;
- an (11) made of ITO on the overcoat layer;
- a seal pattern (15) on the overcoat layer; and
- a second substrate (16) attached to the first substrate by the seal pattern.

Okamoto differs from the claimed invention because he does not explicitly

disclose that the thickness of the over coat layer is between approximately about 1.2 micro-meters and about 5 micro-meters.

Okamoto differs from the claimed invention because he does not explicitly disclose that the thickness of the over coat layer is between approximately about 1.2 micro-meters and about 5 micro-meters.

Kadota discloses a liquid crystal display device including black matrix (8), a color filter (9) on the black matrix and a planarization layer (10) on the color filter (Fig. 2). Kadota also discloses that the planarization layer is made one of acrylic resin or a polyimide resin and has a thickness of 1.0 to 3.0 micro-meters (overlaps the claimed range) prevents impurities in the color filter from spreading into the liquid crystal and that as a result of formation of the planarization layer substrate structure is obtained with excellent liquid crystal orientation characteristics (col. 5, line 61 – col. 6, line 3).

Kadota is evidence that ordinary workers in the art would find a reason, suggestion or motivation to use an overcoat layer having a thickness in the range of 1.0 – 3.0 micro-meters.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the display panel of Okamoto by employing an overcoat layer with an overcoat layer that has a thickness in the range of 1.0 – 3.0 micro-meters for advantages such as preventing impurities in the color filter from spreading into the liquid crystal and thus obtaining with excellent liquid crystal orientation characteristics.

Accordingly, claims 1, 11 and 16 would have been obvious.

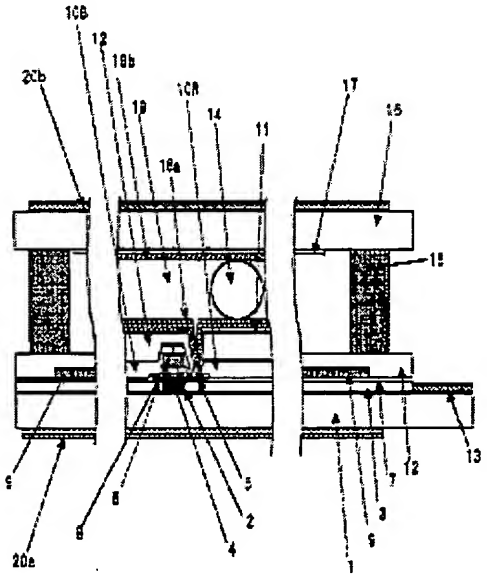
As to claims 2 and 12, Okamoto shows in Fig. 7, that the black matrix (9) is extended at least from the seal pattern formed region to one end of the portion of the first substrate.

As to claims 3, 4, 13 and 14, Okamoto discloses that the black matrix is formed of acrylic resin containing carbon black or black pigment (col. 4, lines 15-21).

As to claims 5 and 15, Okamoto further discloses that the overcoat layer is one of acrylic resin or an epoxy resin (col. 4, lines 45-49).

As to claims 10 and 21, it is clear from Fig. 7 that the black matrix partially overlaps the seal member (15).

Fig. 7



9. Claims 6-9, 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki or Okamoto in view of Kadota and further in view Aoya, USPAT 5,481,388.

10. Suzuki or Okamoto when modified by Kadota differs from the claimed invention because they do not explicitly disclose the limitation such as a glass ball or glass fiber is added to the seal pattern in a weight ratio of about 1% or less.

Aoya discloses a liquid crystal display device wherein glass fiber in a weight ratio of 1% and glass ball are added into the seal pattern to maintain a uniform gap thickness in the liquid crystal cell (abstract). He further discloses the use of glass fiber having a diameter of 7.4 micro-meters and the use of glass balls having a diameter of 7 micro-meters (col. 2, lines 22-23, 38-41). As per applicant's own disclosure when the diameter of the glass ball is between 3.8 to 7.5 micro-meters, approximately 150 to 500 glass balls are distributed in at least one unit area of the seal pattern and when the diameter of the glass fibers is between 3.8 to 7.5 micro-meters, approximately 30-200 glass fibers may be distributed in at least one unit area of the seal pattern (page 23, paragraph 0100-0101).

Aoya is evidence that ordinary workers in the art would find a reason, suggestion or motivation to add glass ball or glass fiber or both to the seal pattern as the support member.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the liquid crystal display panel of Suzuki or Okamoto when modified by Kadota by adding glass ball or glass fiber as the support member to the seal pattern in a weight ratio of about 1% wherein about 150 or fewer support members are in at least one unit area of the seal pattern to maintain a uniform gap thickness in the liquid crystal display panel.

Accordingly, claims 6-9 and 17-20 would have been obvious.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tarifur R. Chowdhury whose telephone number is (571) 272-2287. The examiner can normally be reached on M-Th (6:30-5:00) Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TRC
August 17, 2005

TARIFUR R. CHOWDHURY
PRIMARY EXAMINER